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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/028,837 | 12/20/2001 | James B. Carpenter | 54481US015 | 4405 |
| 32692 | 7590 | 10/06/2003 | EXAMINER | |
| 3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427 | | | | LOPEZ, CARLOS N |
| ART UNIT | | PAPER NUMBER | | |
| | | 1731 | | |

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/028,837 | CARPENTER ET AL. | |
| | Examiner | Art Unit | |
| | Carlos Lopez | 1731 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-16, 18, 19 and 21 is/are rejected.
- 7) Claim(s) 17, 20, 22-24 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 12/20/01 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) Interview Summary (PTO-413) Paper No(s). _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a loading chamber comprising a vessel enclosing the entire length of optical fiber recited in claim 10 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

Applicant is advised that should claim 1, 4 be found allowable, claims 11 and 16 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- 1) Claims 3, 5, 10, 14-15, 19 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the

subject matter which applicant regards as the invention. In claim 3, 5, 14-15, 19, and 21 “the loading chamber” lacks antecedent basis. In claim 10, it is unclear if the optical fiber is loaded into a reel to reel inline system during, after or before the claimed steps recited in claim 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2) Claims 1-3, 5-9, 11-15, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Cullen et al (US 6,146,713). Cullen discloses a hydrogenation device (50) for exposing an optical fiber to a hydrogen environment. As shown in figure 2 of Cullen, the device (50) is divided into two compartments a hot zone 50_H and a cold zone 50_C wherein fibers sections to be hydrogenated are held in hot zone 50_H. Heating the volume of hydrogen surrounding the optical fiber is done by providing heat “Q” in the hot zone 50_H by heat exchanger (60) (col. 7, lines 42-49). The hydrogenation of the optical fiber takes place in a temperature in excess of 250°C (Col. 3, line 67)

As for claim 2, Cullen's claim 23 provides radiation to change the refractive index.

In regards to claim 3 and 15, it is inherent that the optical fiber will be moved out of the treating chamber.

As for claim 5-6, the hydrogenation step is performed to a plurality of optical fiber portions, see abstract.

As for claim 7, Cullen in column 4, lines 8-13 discloses that removal of coatings is facilitated after hydrogenation exposure thus showing that the treated optical fiber may include a coating wherein some depolymerization may occur.

As for claim 8 and 9, the optical fiber is treated with a substantial gas that will not affect the fiber such as nitrogen, see col. 7 lines 4-6.

As for claims 13 and 15, it is inherent that the selected portion of the optical fiber will be removed from the treating chamber and in doing it will rapidly expose the optical fiber portion to a changed atmosphere.

As for claim 14, Cullen discloses that the hydrogen used for treating the optical fiber is preferably recycled (See Col. 7, lines 17-20) thus it is inherent that the hydrogen in the loading chamber will be vented from the chamber. The opening of the chamber to remove the optical fiber will rapidly change the atmosphere surrounding the optical fiber since it is being exposed to the atmosphere. Hence it is deemed that the claimed "venting" and "rapidly changing the atmosphere" steps are met by Cullen.

3) Claims 1-4, 7, 11-12-16, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Brennan, III et al (US 6,311,524). Brennan discloses a method for increasing the photosensitivity of an optical fiber. Brennan's claim 1 recites exposing an optical fiber (which is considered to comprise a plurality of portions making up the

optical fiber) to a hydrogen atmosphere wherein the exposure time does not exceed one hour. Heater 16 then heats the hydrogen as shown in figures 1 and 2 to a temperature greater than 250°C (col. 4, line 15).

As for claim 2, Brennan's claim 10 exposes the optical fiber to actinic radiation.

In regards to claim 3 and 15, it is inherent that the optical fiber will be moved out of the treating chamber 10.

As for claim 4 and 16, Brennan's claim 8 rapidly cools the optical fiber.

AS for claim 7, the fiber includes a coating, which at very high temperatures depolymerization may occur.

As for claims 13 and 15, it is inherent that the selected portion of the optical fiber will be removed from the treating chamber and in doing so will rapidly expose the optical fiber portion to a changed atmosphere.

As for claim 14, as shown in figure 1, hydrogen is vented from the chamber 10. The opening of the chamber to remove the optical fiber will rapidly change the atmosphere surrounding the optical fiber, which is deemed to meet the claimed "venting" and "rapidly changing the atmosphere".

As for claim 18, in removing the optical fiber from the treating chamber it places the optical fiber in a cooling region.

4) Claims 1-5, 11-13, 15--16, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Atkins et al (US 5,930,420). Atkins discloses a method for grating an optical fiber. Atkins' claim 14 recites exposing an optical fiber (which is considered to comprise a plurality of portions making up the optical fiber) to a hydrogen atmosphere

wherein the hydrogen atmosphere is inherently heated to a temperature of at most 250°C for a period of time.

As for claim 2, Atkins' claim 1 exposes the optical fiber to actinic radiation, radiation that changes the index of refraction.

In regards to claim 3 and 15, it is inherent that the optical fiber will be moved out of the hydrogen exposure.

As for claim 4 and 16, Atkins' claim 14 rapidly cools the optical fiber.

As for claim 5-6, the hydrogenation step is performed to a plurality of optical fiber portions, see claim 1.

As for claims 13 and 15, it is inherent that the selected portion of the optical fiber will be removed from the treating chamber and in doing so will rapidly expose the optical fiber portion to a changed atmosphere.

As for claim 18, in removing the optical fiber from the treating chamber it places the optical fiber in a cooling region.

Allowable Subject Matter

Claims 17, 20, and 22-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the cited prior art does not disclose affixing to the optical fiber a pressure as recited in claim 20. Nor does the cited prior art disclose or reasonably replacing the hydrogen atmosphere with a cooled inert gas as recited in claim 17, or disclose re-

closeable seals in contact with the optical fiber during the exposing step as recited in claims 22-24.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References A-M in PTO-892 have been cited to show the state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Lopez whose telephone number is (703) 605-1174. The examiner can normally be reached on Mon.-Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (703) 308-1164. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


STEVEN P. GRIFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

C.L